



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/580,394

05/22/2006

Kyung Sang Cho

PHO0024US

1954

23413 7590 03/24/2010  
CANTOR COLBURN, LLP  
20 Church Street  
22nd Floor  
Hartford, CT 06103

EXAMINER

BREVAL, ELMITO

ART UNIT

PAPER NUMBER

2889

NOTIFICATION DATE

DELIVERY MODE

03/24/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

<p align="center"><b>Advisory Action</b> <b>Before the Filing of an Appeal Brief</b></p>	<p><b>Application No.</b> 10/580,394</p>	<p><b>Applicant(s)</b> CHO ET AL.</p>	
	<p><b>Examiner</b> ELMITO BREVAL</p>	<p><b>Art Unit</b> 2889</p>	

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 08 March 2010 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: 1-10.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_  
13. ☐ Other: \_\_\_\_\_.

/Elmito Breval/  
Examiner, Art Unit 2889

/Bumsuk Won/  
Primary Examiner, Art Unit 2889

Continuation of 11. does NOT place the application in condition for allowance because: The applicant has made several arguments: (1), Jain's (US. Pat: 6,797,412) dielectric layers which made of Ta<sub>2</sub>O<sub>3</sub>, Zn<sub>x</sub>, Mg<sub>1-x</sub>S etc... cannot be used as the applicant electron transport layer because a dielectric material is a non-conducting material substance e.g. an insulator, and therefore prevents the flow of current therethrough; (2), Jain does not teach an inorganic quantum dot light emitting layer because the pseudomorphic cladded quantum dot nanophor material of Jain is organic; (3), Bulovic et al. reference (US. Pub: 2004/0023010) in fig. 2 teaches an organic light emitting layer instead of a quantum dot light-emitting layer; (4), Kishigama (JP: 2000-215984) does not teach or disclose an inorganic quantum dot light-emitting layer provided between the top electrode and the bottom electrode; and an inorganic electron transport layer disposed between the inorganic quantum dot light-emitting layer and the top electrode.

In response to the applicant first argument: the examiner respectfully disagrees for the following reasons: first, the applicant electron transport layer is made of dielectric materials although the dielectric materials of the applicant is not the same as Jain; second, Jain teaches (in col. 5, lines 55-59) hole blocking (i.e. electron transport) can be achieved by thin layers of semiconductors or insulators such as Ta<sub>2</sub>O<sub>5</sub>, Zn<sub>x</sub>Mg<sub>1-x</sub>S, Zn<sub>x</sub>Be<sub>1-x</sub>S etc. Therefore, the dielectric materials of Jain does in fact have electron transport property.

Regarding the second argument: Jain teaches (in col. 4, line 66- col. 5, line 4) the multiple layers comprising of CNCs stacked based on their emission color. For example, depending on the core size and composition, pseudomorphic cladded dots ZnCdSe/ZnSe or ZnCdSe/ZnSSe, emitting red, green and blue. These materials are not organic materials as stated by the applicant. Therefore, Jain does teach a quantum dot light-emitting material.

Regarding the third argument: the applicant is arguing the figure that did not use in the office action. Therefore, this argument is moot.

Regarding the fourth argument: Bulovic teaches (in at least fig. 1 and [0027]) all the claimed limitations except for expressly disclose the electron transport layer is inorganic. The examiner only relied on Kishigama to show that light-emitting device with inorganic electron transport layer is known in the art that one of ordinary skill in the art would easily contemplate of using the inorganic electron transport layer of Kishigama in the device of Bulovic.